REMARKS

Claims 12 to 15, 19 to 21, 23 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,733,238 to Fiden ("Fiden") in view of PCT Patent Publication No. WO 00/37960 to Hillman et al. ("Hillman"). Claims 16 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fiden in view of Hillman and further in view of U.S. Patent Publication No. 2002/0003488 to Levin et al. ("Levin"). Claim 18 was rejected under 35 U.S.C. 103(a) as being unpatentable over Fiden further in view of Levin, U.S. Patent No. 4,403,208 to Hodgson et al. ("Hodgson") and U.S. Patent No. 5,208,756 to Song ("5,208,756"). Claim 22 was rejected under 35 U.S.C. 103(a) as being unpatentable over Fiden in view of Hillman and Levin.

Claims 12, 14, 15, 21 and 24 have been amended to correct an informality and more particularly and distinctly claim the invention.

Reconsideration of the application based on the following is respectfully requested.

Rejections under 35 U.S.C. §103(a): Fiden in view of Hillman

Claims 12 to 15, 19 to 21, 23 and 24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fiden in view of Hillman.

Fiden discloses a method for radar tracking and data communication including the steps of (a) encoding a radar transmit signal with message data in a transmitter; (b) receiving transmitted returns of said encoded radar signal in a first receiver; (c) decoding said received return signal to eliminate message data; (d) receiving said encoded radar signal in a second receiver; and (e) decoding said received radar signal to extract said message data. (Abstract). A bi-phase modulator 24 modulates the phase of the fundamental radar transmit frequency to encode the message data thereon. (See, e.g., Fiden at col. 2, lines 55 to 57).

Hillman discloses a system that tracks and monitors a vehicle by utilizing cellular communication components and global positioning system components for simultaneous and continuous transmission of the combination of baseband voice signal and baseband location data

to a monitoring center. (Abstract). In particular, as shown in Fig. 4, a baseband voice signal is digitized by an analog to digital converter 46, filtered by notch filter 74 and then combined by summer 59, still at baseband, with a data signal 60 at the frequency of the notch filter 74. The combined voice/data signal 62 is then converted to an analog signal by digital to analog converter 123, and then supplied to a cellular transceiver 68 where it is processed for transmission via antenna 40 in a conventional manner. Notably, it is the combined signal that is transmitted via the antenna 40 after processing (e.g., modulation at the chosen radio frequency), not the baseband signal. Thus, Figs. 5A, 5B and 5C merely show the combination, at baseband, of the voice and data signals, not the combination of signals at the transmission frequencies (i.e., at RF).

Rejection of Independent Claim 12

Claim 12 recites "[a] radar system, comprising:

at least one radar device having a sensor and a transmitter configured to transmit data, the at least one radar device having a ***predefined transmission and reception spectrum*** and the data being transmitted at ***a transmission frequency range*** within the predefined transmission and reception spectrum, the ***predefined transmission and reception spectrum being greater than the transmission frequency range***, wherein the sensor and the transmitter are simultaneously operable for a communication." (emphasis added). Claims 13 to 20 and 23 are dependent, directly or indirectly, on claim 12.

Fiden discloses a transmitter/receiver that modulates the phase of a fundamental radar transmit frequency to encode the radar transfer signal with message data. Thus, Fiden does not disclose the at least one radar device of claim 12 having a "predefined ***transmission and reception spectrum***" that is greater than "the ***transmission frequency range***" in which the data is transmitted because both the radar transfer signal and the message data in Fiden are transmitted at the fundamental radar transmit frequency.

In the Office Action, the Examiner appears to recognize that Fiden does not meet the requirement of claim 12 that the "predefined ***transmission and reception spectrum***" must be greater than "the ***transmission frequency range***" in which the data is transmitted. Thus, the

Examiner instead points to Hillman as disclosing this requirement of claim 12. However, Hillman does not teach that a data signal is transmitted in a transmission frequency range within a predefined transmission and reception spectrum, the predefined transmission and reception spectrum being ***greater*** than the transmission frequency range for the data signal, as apparently alleged in the Office Action (see, p. 3, lines 1-4). Instead Hillman teaches that a baseband voice signal is combined with a baseband data signal to generate a combined voice/data signal at baseband, and then this combined signal is provided to a cellular transceiver for transmission in a conventional manner, which necessarily includes conversion to a much higher radio frequency. The signal transmitted by Hillman is not the voice signal but instead is a cellular signal that will be uniform in accordance with the chosen cellular standard. In other words, the transmission frequency range for the data signal in Hillman is exactly the same as the transmission frequency range for the voice signal.

As a result, it is respectfully submitted that Hillman in no way cures the deficiency of Fiden with respect to claim 12 and that one of skill in the art could not and would not have modified the radar communications system of Fiden in view of the baseband processing system disclosed in Hillman to meet the limitations of claim 12. Since the combination of Fiden and Hillman does not teach or disclose each and every limitation of claim 12, claim 12 is not unpatentable as obvious over Fiden in view of Hillman. Therefore, applicants respectfully request withdrawal of the rejection under 103(a) of claims 12 to 20 and 23.

Rejection of Dependent Claim 14: Argued Separately

Claim 14 recites "[t]he radar system as recited in claim 12, wherein the at least one radar device is a pulse-type radar device and the transmission frequency range provided for the transmission of data being in a peripheral region of the predefined transmission/reception spectrum."

With further respect to claim 14, it is respectfully submitted that neither Fiden nor Hillman discloses the limitation of claim 14 of the pulse-type radar device having a transmission frequency range for the transmission of data that is in a peripheral region of the predefined transmission and reception spectrum and it would not have been obvious to one of skill in the art

to have modified Fiden in view of Hillman to meet these limitations. The Office Action states that "Hillman does teach transmitting data in a peripheral region of a ***transmission*** frequency of a voice signal." (p. 6, lines 20-21)(emphasis added). However, as discussed above, Hillman is only addressed to the combination of voice and data signals at baseband, not at RF, and, in fact, teaches that the voice and data signals are transmitted in a common transmission frequency range (i.e., in accordance with the selected the cellular standard). Since Hillman does not disclose the additional limitation added by claim 14, withdrawal of the rejection under 35 U.S.C. 103(a) of claim 14 is respectfully requested.

Rejection of Independent Claim 21

Fiden and Hillman are described above.

Claim 21 recites "[a] radar transmitter comprising:
an element configured to simultaneously emit a broadband signal for sensing and a communications data signal, wherein the broadband signal has ***a transmission and reception spectrum*** with ***a peripheral region***, and the communications data signal is in the peripheral region of the broadband signal."

As with claim 12, it appears that the Office Action admits that Fiden does not disclose the limitation of claim 21 that the "communications and data signal" be "in the peripheral region of the broadband signal." Instead, the Examiner cites Hillman as disclosing this limitation. However, as discussed above, Hillman discloses a system which combines a voice signal with a data signal at baseband and then transmits the combined signal as a convention celluar signal.

Since the combination of Fiden and Hillman does not teach or disclose each and every limitation of claim 21, claim 21 is not unpatentable as obvious over Fiden in view of Hillman. Therefore, applicants respectfully request withdrawal of the rejection under 103(a) of claim 21.

Rejection of Independent Claim 24

Fiden and Hillman are described above.

Claim 24 recites "[a] method for sensing and transmitting data using a radar system having at least one radar device, the method comprising:

sensing and transmitting data simultaneously using the at least one radar device in a pulsed mode, wherein the transmitting of data is performed using a frequency range in a peripheral region of a transmission and reception spectrum of the sensing signal."

As with claim 12, it appears that the Office Action admits that Fiden does not disclose the limitation of claim 24 that "the ***transmitting*** of data is performed using a frequency range in a ***peripheral region*** of a transmission and reception spectrum of the sensing signal." Instead, the Examiner cites Hillman as disclosing this limitation. However, as discussed above, Hillman discloses a system which combines a voice signal with a data signal at baseband and then transmits the combined signal as a convention celluar signal.

Since the combination of Fiden and Hillman does not teach or disclose each and every limitation of claim 24, claim 24 is not unpatentable as obvious over Fiden in view of Hillman. Therefore, applicants respectfully request withdrawal of the rejection under 103(a) of claim 24.

Rejections under 35 U.S.C. §103(a): Fiden in view of Hillman and Levin

Claims 16 and 17 were rejected under 35 U.S.C. 103(a) as being unpatentable over Fiden in view of Hillman and further in view of Levin.

Fiden and Hillman are described above. Levin discloses a network and system that "enables vehicles to communicate with each other in order to exchange information that improves their safety, e.g., extending sensors capabilities, alerting on maneuvering, alerting on junction crossing, etc. It could serve other communication functions, like relaying information to other vehicles, as well as direct voice communication to nearby vehicles." (Levin, par. [0024]).

Claim 16 recites "[t]he radar system as recited in claim 13, wherein the transmission frequency range includes a plurality of individual frequency bands, each for the transmission of data from a different data class." Claim 17 recites "[t]he radar system as recited in claim 16, wherein the different data classes include at least one of emergency data, log data and communications data." Claim 13 is dependent on claim 12.

Levin does not cure the deficiencies of Fiden and Hillman with respect to claim 12, as discussed above, and thus claims 16 and 17 are not unpatentable as obvious over Fiden, Hillman and Levin. Thus, withdrawal of the rejections under 35 U.S.C. 103(a) to claims 16 and 17 is respectfully requested.

Rejections under 35 U.S.C. §103(a): Fiden in view of Levin, Hodgson and Song

Claim 18 was rejected under 35 U.S.C. 103(a) as being unpatentable over Fiden further in view of Levin, Hodgson and Song.

Hodgson discloses a warning-signal producing apparatus and system for a first motor vehicle responsive to a vehicle-presence-indicating radio wave signal produced by and emitted from a second motor vehicle within a certain distance of the first motor vehicle for effectively causing the production of a corresponding warning signal within the interior of the first motor vehicle and, in one form, for correspondingly attenuating, muting, or interrupting sound emitted by any simultaneously operating entertainment apparatus within the first-mentioned-motor vehicle. (Hodgson, Abstract).

Song discloses a vehicle locating and navigating system operating in conjunction with a cellular telephone network is provided. A small, hidden device located in a vehicle is activated through DTMF signals transmitted from any telephone station. Upon activation, the device determines the power at which normally transmitted control channels are received from several base stations of the network. Based upon these determinations, the device then calculates the distance between the vehicle and each of the base stations and, using triangulation or arculation, determines the location of the vehicle. (Song, Abstract).

Claim 18 recites "[t]he radar system as recited in claim 12, wherein the transmitter provides amplitude modulation for the transmission of emergency data, and provides PSK types of modulation for the transmission of communications data and log data."

It is respectfully submitted that Levin does not cure the deficiencies of Fiden and Hillman with respect to claim 12, from which claim 18 depends. In view of the above arguments

with respect to why claim 12 is not unpatentable in view of Fiden and Hillman, withdrawal of the rejection under 35 U.S.C. 103(a) of claim 18 is respectfully requested.

Rejections under 35 U.S.C. §103(a): Fiden in view of Hillman and Levin

Claim 22 was rejected under 35 U.S.C. 103(a) as being unpatentable over Fiden in view of Hillman and Levin.

Fiden, Hillman and Levin are described above.

Claim 22 recites "[a] cooperative radar device system comprising a plurality of radar systems as recited in claim 12, wherein each of the plurality of radar systems is configured to sense its respective surroundings and simultaneously exchange data with another of the plurality of radar systems."

It is respectfully submitted that Levin does not cure the deficiencies of Fiden and Hillman with respect to claim 12, from which claim 22 depends. In view of the above arguments with respect to why claim 12 is not unpatentable in view of Fiden and Hillman, withdrawal of the rejections under 35 U.S.C. 103(a) to claim 22 is respectfully requested.

CONCLUSION

The present application is respectfully submitted as being in condition for allowance and applicants respectfully request such action.

Respectfully submitted,
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